

AMENDMENTS TO THE CLAIMS

Please rewrite claims 43, 44, 59, and 64 in independent form, as follow. A complete listing of the claims is provided, as follows.

1. (Previously Presented) An apparatus for use in a radiation procedure, comprising:
a radiation filter having a first portion and a second portion, the first and the second portions forming a layer for filtering radiation impinging thereon, wherein the first portion is made from a first x-ray filtering material, and the second portion is made from a second x-ray filtering material;
a structure having a cavity, the radiation filter in operative association with the structure;
and
a disk located within the cavity, the disk having a first target material and a second target material, wherein the first target material corresponds with the first x-ray filtering material of the radiation filter, and the second target material corresponds with the second x-ray filtering material of the radiation filter, the second x-ray filtering material being different from the first x-ray filtering material;
wherein the disk having the first target material and the second target material is rotatable.
2. (Previously Presented) The apparatus of claim 1, wherein the first and the second target materials are parts of a radiation source, and the apparatus further comprises the radiation source.
3. (Original) The apparatus of claim 2, further comprising a gantry to which the radiation source is secured.
4. (Canceled)
5. (Canceled)

6. (Original) The apparatus of claim 2, wherein the radiation source comprises an anode that includes a rare earth element, a platinum group metal, or combination thereof.
7. (Original) The apparatus of claim 2, wherein the radiation source comprises a voltage generator.
8. (Original) The apparatus of claim 7, further comprising a switching element coupled to the voltage generator, the switching element configured to modulate the voltage generated by the voltage generator.
9. (Original) The apparatus of claim 1, further comprising an imager for generating image data in response to radiation that has been filtered by the layer.
10. (Original) The apparatus of claim 9, wherein the imager has a first image element for generating a first image data in response to radiation that has been filtered by the first portion of the radiation filter, and a second image element for generating a second image data in response to radiation that has been filtered by the second portion of the radiation filter.
11. (Original) The apparatus of claim 9, further comprising a gantry, wherein the imager and the radiation filter are secured to the gantry.
12. (Previously Presented) The apparatus of claim 9, wherein the imager is coupled to a support structure for supporting an object to which filtered radiation is directed.
13. (Previously Presented) The apparatus of claim 1, wherein either or both of the first and the second x-ray filtering materials are selected from the group consisting of aluminum, copper, and molybdenum.
- 14-20. (Canceled)

21. (Previously Presented) A method for generating image data, comprising:
generating a first x-ray radiation using a first target material;
applying a first filter factor to the first x-ray radiation to obtain a first filtered radiation;
generating a first set of image data in response to the first filtered radiation;
generating a second x-ray radiation using a second target material;
applying a second filter factor to the second x-ray radiation to obtain a second filtered radiation; and
generating a second set of image data in response to the second filtered radiation;
wherein the first and the second filter factor is applied automatically using a machine;
and
wherein the first target material forms a first ring, the second target material forms a second ring, the first x-ray radiation is generated by aiming electrons towards the first ring, and the second x-ray radiation is generated by deflecting the electrons such that they are aimed towards the second ring, the first target material having at least an arc shape or a partial circular shape.
22. (Original) The method of claim 21, wherein the first filter factor is applied by placing a first filter into the x-ray radiation.
23. (Original) The method of claim 21, wherein the second filter factor is applied by placing a second filter into the x-ray radiation.
24. (Previously Presented) The method of claim 21, wherein the first filter factor has a same filtering characteristic as the second filter factor.
25. (Original) The method of claim 21, wherein the first filter factor is different from the second filter factor.
26. (Canceled)

27. (Previously Presented) The method of claim 21, wherein the first filter factor and the second filter factor are applied by placing a first filter and a second filter, respectively, into the first and second x-ray radiation.
28. (Previously Presented) The method of claim 27, wherein the first filter and the second filter are secured to a rotatable structure.
29. (Original) The method of claim 21, wherein the first set and the second set of image data are generated using an imager.
30. (Original) The method of claim 29, further comprising collecting the first set and the second set of image data from the imager.
31. (Original) The method of claim 30, wherein the collection of the first and the second sets of image data is synchronized with positions of the first and the second filters.
32. (Original) The method of claim 21, wherein the first set of image data is generated using a first imager, and the second set of image data is generated using a second imager.
33. (Original) The method of claim 32, further comprising collecting the first set and the second set of image data from the first and the second imagers, respectively.
34. (Original) The method of claim 27, wherein either or both of the first and second filters comprise a material selected from the group consisting of aluminum, copper, and molybdenum.
- 35-38. (Canceled)
39. (Previously Presented) An apparatus for use in a radiation procedure, comprising:
a structure;

a first radiation filter secured to the structure;
a second radiation filter secured to the structure;
a first target material that is moveable relative to an electron source;
a second target material; and
a positioner coupled to the structure, the positioner configured to move the structure between a first position and a second position, wherein the first radiation filter is adapted to receive a first radiation generated using the first target material, and the second radiation filter is adapted to receive a second radiation generated using the second target material, the first and second radiation filters having different respective filtering materials, wherein the second radiation is generated after the first radiation is generated.

40. (Original) The apparatus of claim 39, wherein the structure comprises a wheel.

41. (Original) The apparatus of claim 39, wherein the positioner comprises a motor.

42. (Original) The apparatus of claim 39, wherein either or both of the first and the second radiation filters is made from a material selected from the group consisting of aluminum, copper, and molybdenum.

43. (Currently Amended) ~~The apparatus of claim 1,~~ An apparatus for use in a radiation procedure, comprising:

a radiation filter having a first portion and a second portion, the first and the second portions forming a layer for filtering radiation impinging thereon, wherein the first portion is made from a first x-ray filtering material, and the second portion is made from a second x-ray filtering material;

a structure having a cavity, the radiation filter in operative association with the structure;
and

a disk located within the cavity, the disk having a first target material and a second target material, wherein the first target material corresponds with the first x-ray filtering material of the radiation filter, and the second target material corresponds with the second x-ray filtering

material of the radiation filter, the second x-ray filtering material being different from the first x-ray filtering material;

wherein the disk having the first target material and the second target material is rotatable; and

wherein the first target material forms a ring configuration.

44. (Currently Amended) ~~The apparatus of claim 1,~~ An apparatus for use in a radiation procedure, comprising:

a radiation filter having a first portion and a second portion, the first and the second portions forming a layer for filtering radiation impinging thereon, wherein the first portion is made from a first x-ray filtering material, and the second portion is made from a second x-ray filtering material;

a structure having a cavity, the radiation filter in operative association with the structure;
and

a disk located within the cavity, the disk having a first target material and a second target material, wherein the first target material corresponds with the first x-ray filtering material of the radiation filter, and the second target material corresponds with the second x-ray filtering material of the radiation filter, the second x-ray filtering material being different from the first x-ray filtering material;

wherein the disk having the first target material and the second target material is rotatable; and

wherein the first target material and the second target material are positioned concentrically relative to each other.

45. (Previously Presented) The apparatus of claim 1, wherein the first target material and the second target material are positioned relative to each other in a side-by-side configuration.

46. (Previously Presented) The apparatus of claim 1, further comprising an electron gun for sending electrons towards the first or the second target material.

47. (Previously Presented) The apparatus of claim 46, further comprising an electron deflector for changing a path of the electrons such that the electrons can be selectively aimed towards the first target material or the second target material.

48. (Previously Presented) The apparatus of claim 47, wherein the electron deflector comprises an electromagnetic field generator.

49. (Previously Presented) The apparatus of claim 47, wherein the electron deflector comprises a magnetic field generator.

50. (Previously Presented) The apparatus of claim 47, wherein the electron deflector physically deflects the electrons.

51. (Previously Presented) The apparatus of claim 1, further comprising a gantry to which the structure is secured.

52. (Previously Presented) The apparatus of claim 1, wherein the structure is a part of a MRI machine.

53. (Previously Presented) The apparatus of claim 1, wherein the structure is a part of a PET machine.

54. (Previously Presented) The apparatus of claim 1, wherein the first x-ray filtering material comprises a k-edge filter.

55. (Previously Presented) The apparatus of claim 1, wherein the first x-ray filtering material has a x-ray transmission window that is above a k-edge, and the second x-ray filtering material has a x-ray transmission window that is below the k-edge.

56. (Previously Presented) The method of claim 21, wherein the act of generating the first x-ray radiation comprises rotating the first target material.

57. (Previously Presented) The apparatus of claim 1, wherein the first target material forms a first ring, the second target material forms a second ring, and the apparatus further comprises an electron deflector for selectively aiming electrons towards the first ring or the second ring, and wherein the first and second rings are rotatable relative to an electron source.

58. (Previously Presented) The apparatus of claim 57, further comprising a positioner for rotating the first ring, wherein the positioner is configured to rotate the first ring while the electrons are aimed towards the first ring.

59. (Currently Amended) ~~The apparatus of claim 1,~~ An apparatus for use in a radiation procedure, comprising:

a radiation filter having a first portion and a second portion, the first and the second portions forming a layer for filtering radiation impinging thereon, wherein the first portion is made from a first x-ray filtering material, and the second portion is made from a second x-ray filtering material;

a structure having a cavity, the radiation filter in operative association with the structure;
and

a disk located within the cavity, the disk having a first target material and a second target material, wherein the first target material corresponds with the first x-ray filtering material of the radiation filter, and the second target material corresponds with the second x-ray filtering material of the radiation filter, the second x-ray filtering material being different from the first x-ray filtering material;

wherein the disk having the first target material and the second target material is rotatable; and

wherein the first target material has at least an arc or a partial circular shape.

60. (Previously Presented) The method of claim 21, further comprising:

rotating the first ring while the electrons are aimed towards the first ring; and
rotating the second ring while the electrons are aimed towards the second ring.

61. (Canceled)

62. (Previously Presented) The apparatus of claim 39, wherein the first target material forms a first ring, the second target material forms a second ring, and the apparatus further comprises an electron deflector for selectively aiming electrons towards the first ring or the second ring, and wherein the first and second rings are rotatable relative to the electron source.

63. (Previously Presented) The apparatus of claim 62, further comprising a motor for rotating the first ring, wherein the motor is configured to rotate the first ring while the electrons are aimed towards the first ring.

64. (Currently Amended) ~~The apparatus of claim 39,~~ An apparatus for use in a radiation procedure, comprising:

a structure;

a first radiation filter secured to the structure;

a second radiation filter secured to the structure;

a first target material that is moveable relative to an electron source;

a second target material; and

a positioner coupled to the structure, the positioner configured to move the structure between a first position and a second position, wherein the first radiation filter is adapted to receive a first radiation generated using the first target material, and the second radiation filter is adapted to receive a second radiation generated using the second target material, the first and second radiation filters having different respective filtering materials, wherein the second radiation is generated after the first radiation is generated;

wherein the first target material ~~that~~ has at least an arc or a partial circular shape.

65. (Previously Presented) The method of claim 21, wherein the arc shape or the partial circular shape has a continuous configuration.

66. (Previously Presented) The apparatus of claim 59, wherein the arc or partial circular shape has a continuous configuration.

67. (Previously Presented) The apparatus of claim 64, wherein the arc or partial circular shape has a continuous configuration.